

Name \_\_\_\_\_

Math 1  
Exam 6

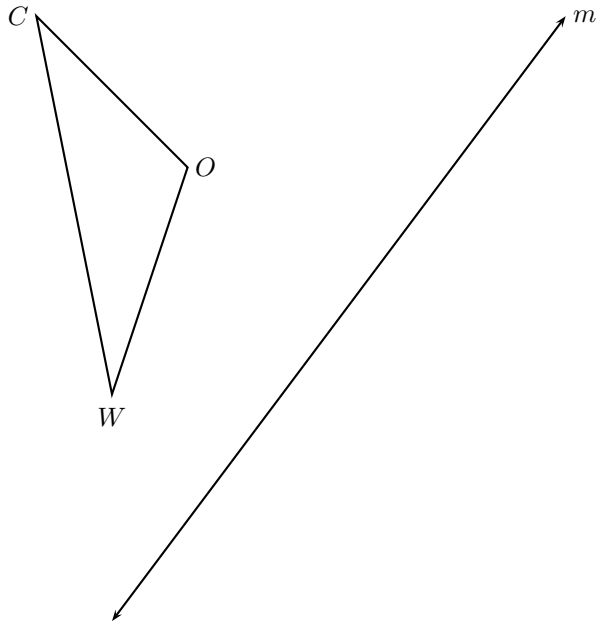
For all problems, show all work. You may use a graphing calculator. Do not round unless instructed otherwise. Good luck! ☺

1. (C3, 6D) Explain what it means for two figures to be congruent. Your explanation should account for *all* types of figures that can be congruent, including polygons and circles.

2. (6D, 6F) Assume that  $\triangle CAT$  and  $\triangle DOG$  have the properties that  $\overline{CA}$  and  $\overline{DO}$  have length 17 cm and  $\overline{CT}$  and  $\overline{DG}$  have length 14 cm. Determine the minimum number of angle measurements you would need to know to be able to determine whether  $\triangle CAT \cong \triangle DOG$ . State the names of the angles whose measurements you would need to know.

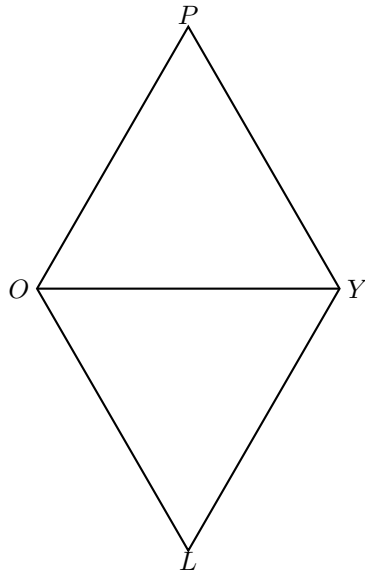
3. (6C) Determine the equation of the line in slope-intercept form that is perpendicular to  $3x + 5y = 37$  and passes through  $(6, 2)$ .

4. (6A, 6C) Reflect  $\triangle COW$  about line  $m$ , then rotate the image of that triangle  $90^\circ$  clockwise about the image of  $C$ .



5. (C3, 6D) Prove that the diagonals of a rhombus must be perpendicular to each other. (This problem may also assess 6E and/or 6F depending on your method of solution.)

6. (6B, 6E) In the picture below,  $\triangle POY$  and  $\triangle LOY$  are equilateral triangles. Determine two distinct transformations (consisting of one step only) such that the image of  $\triangle POY$  is  $\triangle LOY$ . (Note that the transformations need not preserve the order of the points. For example, the image of  $P$  need not be  $L$ .) Be *very specific* when describing the transformations.



7. (6C, 6G) Construct a line segment that is exactly  $\sqrt{13}$  times as long as  $\overline{HI}$ .  
(Hint: Pythagorean Theorem)

